I-405 Improvement Project

Amendment 1 - Noise Study Report

Seal Beach Tennis Court Center

In Orange County from SR-73 to the I-605 Interchange

The final Noise Study Report dated June 2011 conducted for I-405 Improvement Project had identified Soundwall S1162 adjacent to the City of Seal Beach Tennis Court Center, as a feasible abatement measure for Alternatives 1, 2, and 3. However, NADR had concluded that this soundwall cannot be constructed within determined allowance for any build alternatives; therefore, it had concluded that this soundwall will not be considered reasonable for Alternatives 1,2, and 3. Upon further review it was determined that because the length of tennis court area along I-405 is approximately 550 feet, a higher number of benefited units –equivalent to benefited residence- can be considered for the noise analysis. As every 100 feet of exposed area is considered one frontage unit, six frontage units should have been considered in for the noise analysis instead of two.

The following are revised tables for each alternative that show the corrected frontage units and attached are corrected figures. It was assumed that Receivers R5.39 and R5.40 each represent three frontage units. NADR will also be revised to consider this correction.

Alternative 1

Table 7-21. Summary of Reasonableness Determination Data – Alternative 1 – Soundwall S1162

Barrier I.D.: S1162					
Predicted Sound Level without Barrier					
Critical Design Receiver: R5.40					
Design Year Noise Level, dBA L_{eq}(h): 68					
Design Year Noise Level Minus Existing Noise Level: 2					
Design Year with Barrier	**8-Foot Barrier**	**10-Foot Barrier**	**12-Foot Barrier**	**14-Foot Barrier**	**16-Foot Barrier[c]**
Barrier Noise Reduction, dB	1	2	5	5	4
Number of Benefited Residences	N/A	N/A	3	3	N/A
New Highway or More than 50% of Residences Predate 1978[b]	N/A	N/A	Yes	Yes	N/A
Reasonable Allowance Per Benefited Residence	N/A	N/A	$43,000	$43,000	N/A
Total Reasonable Allowance	N/A	N/A	$129,000	$129,000	N/A

Note: NA-Not applicable. Barrier does not provide 5 dB of noise reduction.

[a] An NADR will be prepared that will identify noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

[b] This adjustment increases the abatement allowance by $10,000 if the project is new highway construction or if most of the benefited residences (more than 50%) existed before January 1, 1978.

[c] These results are not reliable due to issues with procedures used in TNM to calculate noise levels when two parallel walls intervene between source and receiver.

Table G-5 – Predicted Future Noise Levels and Barrier Analysis – Alternative 1 – Segment 5 (Cont'd)

Receiver I.D.	Barrier I.D. and Location	Land Use [2]	Number of Dwelling Units	Existing Noise Level Leq(h), dBA [1,3]	I-405 PA-ED Alternative 1 Future Worst Hour Noise Levels - Leq(h), dBA [1,6]																				
					Design Year No Build Noise Level Leq(h), dBA [1]	Design Year Build Noise Level Leq(h), dBA [1]	Design Year No Build Noise Level Minus Existing Conditions Leq(h), dBA	Design Year Build Noise Level Minus No Build Conditions Leq(h), dBA	Activity Category (NAC)	Impact Type [4]	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefitted Receivers (NBR)													
											8 feet			10 feet			12 feet			14 feet			16 feet		
											Leq(h)	I.L.	NBR	Leq(h)	I.L.	NBR	Leq(h)	I.L.	NBR	Leq(h)	I.L.	NBR	Leq(h)	I.L.	NBR
R 5. 39	W,K8	S1162	REC	3	65 MOD	66	66	1	0	B (67)	A/E	--	--	--	64	2	*0*	62 T	4	*0*	62	4	*0*	64 7	2	*0*
R 5. 40	W,K8,C	Shoulder	REC	3	66 M,ST42	67	68	1	1	B (67)	A/E	--	--	--	66	2	*0*	**63** R,T	**5**	*3*	63	5	*3*	64 7	4	*0*
R 5. 41	W	--	MFR	3	64 MOD	63	63	-1	0	B (67)	NONE	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 5. 42	W		MFR	4	63 MOD	62	63	-1	1	B (67)	NONE	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:

1 - Leq(h) are A-weighted, peak hour noise levels in decibels.

2 - Land Use: SFR - single-family residence; MFR - multi-family residence; MH - mobile Home; MOT - motel/hotel; SCH - school; REC - recreational/park; REL - religious institution.

3 - M - Measured noise level; STxx or LTxx - measurement site number; CAL - noise model calibration site; MOD - Estimated from No-Build Alternative and measurement sites.

4 - S = Substantial Increase (12 dBA or more); A/E = Approach or exceed NAC.

5 - Barrier height needed to meet requirements at adjacent receptor(s).

6 - Traffic noise from the freeway only; other local noise sources are not included.

7 - These noise levels are not reliable due to issues with procedures used in TNM to calculate noise levels when two parallel walls intervene between source and receiver.

R - The minimum height to meet feasibility requirements of Caltrans' Noise Abatement Criteria.

T - Minimum height required to block the line-of-sight from the receptor to truck exhaust stacks.

W - Reciever protected by existing private property wall or soundwall.

C - Critical design receiver.

* - Non first row residences.

K8 - An adjustment factor of -1 dB is applied for these receivers to account for the transmission loss from an intervening tarp-covered fence.

Alternative 2

Table 7-44. Summary of Reasonableness Determination Data – Alternative 2 – Soundwall S1162

Barrier I.D.: S1162					
Predicted Sound Level without Barrier					
Critical Design Receiver: R5.39					
Design Year Noise Level, dBA L_{eq}(h): 67					
Design Year Noise Level Minus Existing Noise Level: 2					
Design Year with Barrier	**8-Foot Barrier**	**10-Foot Barrier**	**12-Foot Barrier**	**14-Foot Barrier[c]**	**16-Foot Barrier[c]**
Barrier Noise Reduction, dB	0	2	5	2	3
Number of Benefited Residences	N/A	N/A	3	N/A	N/A
New Highway or More than 50% of Residences Predate 1978[b]	N/A	N/A	Yes	N/A	N/A
Reasonable Allowance Per Benefited Residence	N/A	N/A	$43,000	N/A	N/A
Total Reasonable Allowance	N/A	N/A	$129,000	N/A	N/A

Note: NA-Not applicable. Barrier does not provide 5 dB of noise reduction.

[a] An NADR will be prepared that will identify noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

[b] This adjustment increases the abatement allowance by $10,000 if the project is new highway construction or if most of the benefited residences (more than 50%) existed before January 1, 1978.

[c] These results are not reliable due to issues with procedures used in TNM to calculate noise levels when two parallel walls intervene between source and receiver.

Table G-11 – Predicted Future Noise Levels and Barrier Analysis – Alternative 2 – Segment 5 (Cont'd)

Receiver I.D.	Barrier I.D. and Location	Land Use[2]	Number of Dwelling Units	Existing Noise Level Leq(h), dBA[1,3]	I-405 PA-ED Alternative 2 Future Worst Hour Noise Levels - Leq(h), dBA1,6																				
					Design Year No Build Noise Level Leq(h), dBA[1]	Design Year Build Noise Level Leq(h), dBA[1]	Design Year No Build Noise Level Minus Existing Conditions Leq(h), dBA	Design Year Build Noise Level Minus No Build Conditions Leq(h), dBA	Activity Category (NAC)	Impact Type[4]	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefitted Receivers (NBR)													
											8 feet			10 feet			12 feet			14 feet			16 feet		
											Leq(h)	I.L.	NBR	Leq(h)	I.L.	NBR	Leq(h)	I.L.	NBR	Leq(h)	I.L.	NBR	Leq(h)	I.L.	NBR
R 5. 39	W,K8	S1162	REC	3	65 MOD	66	67	1	1	B (67)	A/E	67	0	--	64	3	*0*	**62 R,T**	**5**	*3*	65	2	*0*	64 7	3	*0*
R 5. 40	W,K8,C	Shoulder	REC	3	66 M,ST42	67	68	1	1	B (67)	A/E	68	0	--	67	1	*0*	64 T	4	*0*	66	2	*0*	65 7	3	*0*
R 5. 41	W	--	MFR	3	63 MOD	63	64	0	1	B (67)	NONE	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 5. 42	W		MFR	4	62 MOD	62	63	0	1	B (67)	NONE	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:

1 - $L_{eq(h)}$ are A-weighted, peak hour noise levels in decibels.

2 - Land Use: SFR - single-family residence; MFR - multi-family residence; MH - mobile Home; MOT - motel/hotel; SCH - school; REC - recreational/park; REL - religious institution.

3 - M - Measured noise level; STxx or LTxx - measurement site number; CAL - noise model calibration site; MOD - Estimated from No-Build Alternative and measurement sites.

4 - S = Substantial Increase (12 dBA or more); A/E = Approach or exceed NAC.

5 - Barrier height needed to meet requirements at adjacent receptor(s).

6 - Traffic noise from the freeway only; other local noise sources are not included.

7 - These noise levels are not reliable due to issues with procedures used in TNM to calculate noise levels when two parallel walls intervene between source and receiver.

R - The minimum height to meet feasibility requirements of Caltrans' Noise Abatement Criteria.

T - Minimum height required to block the line-of-sight from the receptor to truck exhaust stacks.

W - Reciever protected by existing private property wall or soundwall.

C - Critical design receiver.

* - Non first row residences.

K8 - An adjustment factor of -1 dB is applied for these receivers to account for the transmission loss from an intervening tarp-covered fence.

Alternative 3

Table 7-69. Summary of Reasonableness Determination Data – Alternative 3 – Soundwall S1162

Barrier I.D.: S1162					
Predicted Sound Level without Barrier					
Critical Design Receiver: R5.39					
Design Year Noise Level, dBA L_{eq}(h): 67					
Design Year Noise Level Minus Existing Noise Level: 2					
Design Year with Barrier	**8-Foot Barrier**	**10-Foot Barrier**	**12-Foot Barrier**	**14-Foot Barrier**	**16-Foot Barrier[c]**
Barrier Noise Reduction, dB	1	3	6	6	3
Number of Benefited Residences	N/A	N/A	6	6	N/A
New Highway or More than 50% of Residences Predate 1978[b]	N/A	N/A	Yes	Yes	N/A
Reasonable Allowance Per Benefited Residence	N/A	N/A	$45,000	$45,000	N/A
Total Reasonable Allowance	N/A	N/A	$270,000	$270,000	N/A

Note: NA-Not applicable. Barrier does not provide 5 dB of noise reduction.

[a] An NADR will be prepared that will identify noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

[b] This adjustment increases the abatement allowance by $10,000 if the project is new highway construction or if most of the benefited residences (more than 50%) existed before January 1, 1978.

[c] These results are not reliable due to issues with procedures used in TNM to calculate noise levels when two parallel walls intervene between source and receiver.

Table G-17 – Predicted Future Noise Levels and Barrier Analysis – Alternative 3 – Segment 5 (Cont'd)

Receiver I.D.	Barrier I.D. and Location	Land Use[2]	Number of Dwelling Units	Existing Noise Level Leq(h), dBA[1,3]	I-405 PA-ED Alternative 3 Future Worst Hour Noise Levels - Leq(h), dBA[1,6]																				
					Design Year No Build Noise Level Leq(h), dBA[1]	Design Year Build Noise Level Leq(h), dBA[1]	Design Year No Build Noise Level Minus Existing Conditions Leq(h), dBA	Design Year Build Noise Level Minus No Build Conditions Leq(h), dBA	Activity Category (NAC)	Impact Type[4]	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefitted Receivers (NBR)													
											8 feet			10 feet			12 feet			14 feet			16 feet		
											Leq(h)	I.L.	NBR	Leq(h)	I.L.	NBR	Leq(h)	I.L.	NBR	Leq(h)	I.L.	NBR	Leq(h)	I.L.	NBR
R 5. 39	W,K8	S1162	REC	3	65 MOD	66	67	1	1	B (67)	A/E	66	1	--	64	3	*0*	**61 R,T**	**6**	*3*	61	6	*3*	64 [7]	3	*0*
R 5. 40	W,K8,C	Shoulder	REC	3	66 M,ST42	67	68	1	1	B (67)	A/E	67	1	--	66	2	*0*	**63 R,T**	**5**	*3*	63	5	*3*	64 [7]	4	*0*
R 5. 41	W	--	MFR	3	63 MOD	63	63	0	0	B (67)	NONE	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 5. 42	W		MFR	4	62 MOD	62	63	0	1	B (67)	NONE	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:

1 - Leq(h) are A-weighted, peak hour noise levels in decibels.

2 - Land Use: SFR - single-family residence; MFR - multi-family residence; MH - mobile Home; MOT - motel/hotel; SCH - school; REC - recreational/park; REL - religious institution.

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